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FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

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November 22, 2017 (revised February 5, 2018)

North Carolina Department of Transportation
Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, North Carolina 27610

Attn.: Mr. Gordon Box, L.G.
GeoEnvironmental Project Manager

Re: State Project: R-2530B
WBS Element: 34446.1.6
NC 24-27 from Bird Road in Albemarle to West of the Pee Dee River

Subject: **Preliminary Site Assessment**
Parcel #007 – NNN WG Albemarle LLC (Walgreens)
1900 East Main Street
Albemarle, North Carolina
F&R Project #66V-0092

Dear Mr. Box:

Froehling and Robertson, Inc. (F&R) has completed the authorized Preliminary Site Assessment at the NNN WG Albemarle LLC property located in Albemarle, North Carolina. The work was performed in general accordance with F&R's Proposal No. 1866-00132, dated June 14, 2017 (and revised June 22, 2017). Notice to Proceed was issued to F&R on July 6, 2017. This report documents our field activities, presents the results of laboratory analysis and provides estimated quantities of petroleum impacted soils.

Please do not hesitate to contact us should you have any questions regarding this report.

Sincerely,

FROEHLING & ROBERTSON, INC.

DocuSigned by:
4DB7F275EBFD410...

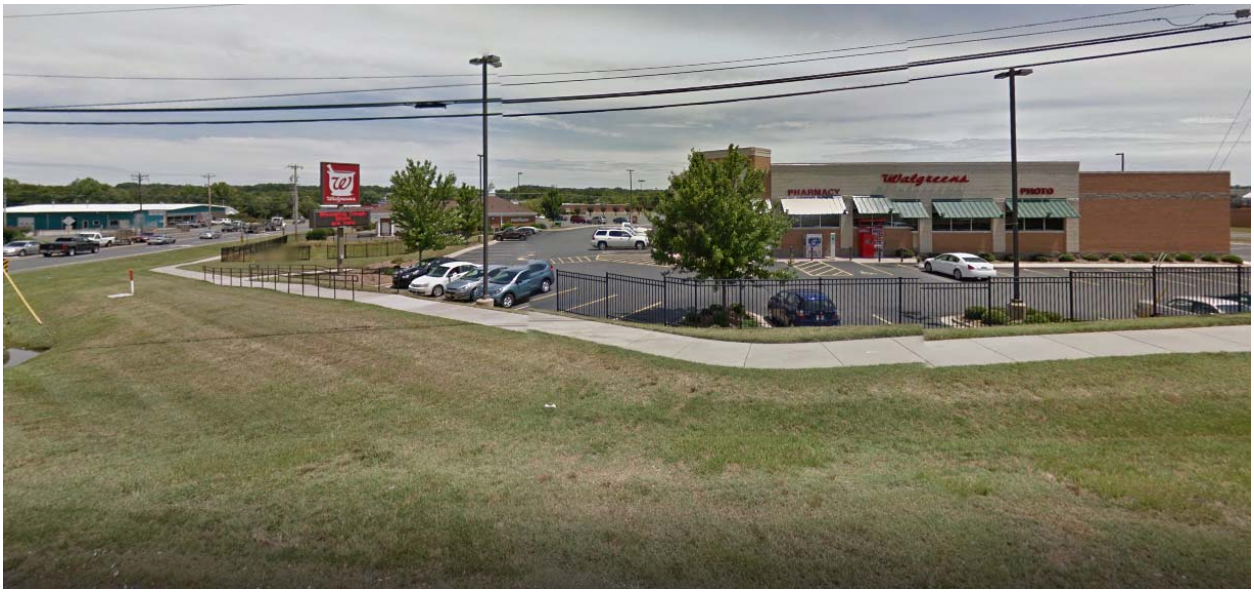
DocuSigned by:
Benjamin A. Whitley
E425D6E8C23545B...

NORTH CAROLINA PROFESSIONAL SEAL 038743 ENGINEER BENJAMIN A. WHITLEY

Clint E. Sorrell
Environmental Scientist

Benjamin A. Whitley, P.E.
GeoEnvironmental Services Manager

FROEHLING & ROBERTSON, INC.



PRELIMINARY SITE ASSESSMENT

NNN WG Albemarle LLC (Parcel #007)
Walgreens
1900 East Main Street
Albemarle, North Carolina
State Project: R-2530B
WBS Element: 34446.1.6
F&R Project #66V-0092

November 22, 2017 (revised February 5, 2018)

Prepared for:

North Carolina Department of Transportation
Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, NC 27610

310 Hubert Street Raleigh, North Carolina 27603 919.828.3441

TABLE OF CONTENTS

PAGE

Preliminary Site Assessment Report
NNN WG Albemarle LLC Property (Parcel #007)
Albemarle, Stanly County, North Carolina
F&R Project No. 66V-0092

1.0 Introduction

Froehling and Robertson, Inc. (F&R) has prepared this Preliminary Site Assessment (PSA) Report to document soil assessment activities performed at the NNN WG Albemarle LLC Property addressed as 1900 East Main Street, in Albemarle, Stanly County, North Carolina. The site is located on the southeast quadrant of the East Main Street and NC 24-27 intersection as shown in Appendix I, Figures 1 and 2. As indicated in the Request for Technical and Cost Proposal (RFTCP), the site operates as an existing pharmacy drug store (Walgreens). The RFTCP also indicates the site previously operated as a gas station and convenience store. According to the NCDEQ UST Section Registry, the site has been assigned two Facility IDs (0-008321 and 0-002057). One UST was removed in 1992, and five additional USTs were removed in 2003. In addition, multiple incidents were reported from 1990 to 1992 and closed out in various phases from 1997 to 2007.

According to the NCDOT within their RFTCP, acquisition of right-of-way is necessary for the proposed NC 24-27 design. As such, the NCDOT requested a PSA be performed to assess the possibility of encountering petroleum impacted soil from known or unknown USTs, and to locate USTs which may exist within proposed easements and right-of-way at the project site

The PSA was performed in general accordance with F&R's Proposal No. 1866-00132, dated June 14, 2017 (and revised June 22, 2017) with Notice to Proceed issued to F&R by the NCDOT on July 6, 2017. The purpose of this report is to document field activities, present the results of laboratory analysis, and provide estimated quantities of petroleum impacted soils.

The existing on-site structure is one-story in height and is presumably constructed of concrete masonry unit (CMU) block. The remainder of the site consists of an asphalt paved parking lot and landscaped areas. The site is bordered to the north by East Main Street and NC 24-27; to the south by retail stores; to the east by First Bank; and to the west by a Verizon store and NC-24-27. Access to the site is gained from East Main Street, to the east, or NC-24-27, to the west.

2.0 Geophysical Survey

Prior to F&R's soil assessment activities, Pyramid Environmental & Engineering, P.C. (Pyramid) conducted a geophysical survey to locate suspect metal underground storage tanks (USTs). The geophysical work was conducted on July 19, 2017 and was performed within the proposed right-of-way and proposed drainage and utility easements of East Main Street and NC-24/27 Bypass East.

The geophysical investigation consisted of electromagnetic (EM) induction surveys using a Geonics EM61 instrument. The EM61 data was collected along parallel survey lines spaced approximately 5 feet apart. Ground-penetrating radar (GPR) investigations were not performed at the project site. The data was reviewed in the field to evaluate the possible presence of USTs and later transferred to a desktop computer for further review. Isolated EM anomalies were identified on the site, including a utility vault, poles, signs, utilities, manholes, pipes, reinforced pipe, and metal fencing.

Based on the EM data collected at the site, Pyramid did not observe anomalies that were interpreted to be the results of metallic USTs within about 8 feet of the ground surface. The complete geophysical report is attached as Appendix II.

3.0 Site Assessment Activities

F&R visited the site on August 8, 2017 to perform the Preliminary Site Assessment. The assessment consisted of advancing 9 borings into the soils at the project site using direct-push technology (GeoProbe). The boring locations were determined by F&R staff based on the results of the geophysical survey, site features, and proposed construction activities (including grading and/or storm drain utility installation). Five of the borings (B-1 through B-5) were advanced on the northwestern portion of the site adjacent to NC-24-27. Borings B-6 through B-9 were advanced on the northeastern portion of the site adjacent to East Main Street. F&R attempted to advance the borings to the proposed depth of 10 feet below-ground-surface (bgs). However, Borings B-1 through B-4, and B-8 were terminated at depths ranging from 8 to 9 feet bgs, and Borings B-5 through B-7, and B-9 were terminated at depths ranging from 2 to 5 feet bgs where GeoProbe refusal was encountered. Photos detailing existing site features are attached as Appendix III and boring locations are depicted in Figure 3 of this report.

Soil sample cores from the borings were collected in disposable, 4-foot long acetate sleeves. The soil samples were visually/manually classified and screened in the field using a calibrated photo-ionization detector (PID) for evidence of petroleum hydrocarbons. Evaluation of VOC

concentrations were performed using a calibrated MiniRae 3000 PID which produces results in parts per million (ppm). A representative soil sample was collected from two foot sections of each sleeve and placed in a re-sealable plastic bag. The vapors were then allowed to equilibrate in the headspace of the bag for approximately ten minutes prior to measurement with the PID. The measurements were collected by placing the probe tip into the headspace of the bag. PID measurements can be found in the GeoProbe Logs in Appendix IV, as well as in Table 1 in Section 5.0 below.

Generally, the soil sample in each boring which exhibited the highest PID concentration was submitted for laboratory analysis for diesel range organics (DRO), gasoline range organics (GRO), Total BTEX (benzene, toluene, ethylbenzene and xylenes), 16 PAHs (polycyclic aromatic hydrocarbons) and BaP (Benzo(a)pyrene) by Ultraviolet Fluorescence (UVF) technology (RedLab QED Hydrocarbon Analyzer).

The samples were collected in laboratory-supplied sample containers, placed in a cooler with ice, and shipped via UPS to RedLab in Wilmington, North Carolina following standard chain-of custody procedures.

4.0 Subsurface Conditions

As indicated in the attached GeoProbe Logs (Appendix IV), subsurface conditions from existing ground surface to boring termination primarily included various layers of dry to moist, orange-brown silty sandy clay; dry, tan-gray-brown silt; and dry, tan/gray silt with siltstone. F&R attempted to advance the borings to the proposed depth of 10 bgs. However, Borings B-1 through B-4, and B-8 were terminated at depths ranging from 8 to 9 feet bgs, and Borings B-5 through B-7, and B-9 were terminated at depths ranging from 2 to 5 feet bgs where interbedded layers of dense silt and siltstone were encountered.

PID readings generally did not exceed 1.2 ppm, and petroleum odors and/or groundwater were not observed during field screening or sample collection activities.

5.0 Analytical Results

As shown in the following table, petroleum hydrocarbons identified as GRO were not encountered in the soil samples obtained from the site. Petroleum hydrocarbons identified as DRO were encountered in the soil samples at five boring locations advanced at the site (B-2, B-5, B-6, B-8, and B-9), at depths from 0 to 2 feet bgs (B-5 and B-6) to 6 to 8 feet bgs (B-2). The

laboratory results indicate that the DRO concentrations ranged from 2.2 mg/kg (B-2) to 56.9 mg/kg (B-5), which are below the NCDEQ UST Section DRO Action Level of 100 mg/kg.

The laboratory analytical results indicate concentrations of the sum of 16 EPA PAHs above the method detection limit, but below the total NCDEQ Action Level of 9,068.816 mg/kg at Borings B-5, B-6, and B-9. The soil analytical results are summarized in Table 1 below. The laboratory analytical results can also be found in the attached Appendix V and Figure 4 of this report.

Table 1
Soil Sampling Analytical Results

Sample ID	Sample Date	Sample Depth (ft bgs)	PID Reading (ppm)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)	Total BTEX (mg/kg)	Total Aromatics (mg/kg)	16 EPA PAHs (mg/kg)	BaP (mg/kg)
B-1	8/8/17	4-6	0.6	< 1	<1	<1	<1	<0.2	<0.32	<0.04
B-2		6-8	0.6	<0.96	2.2	2.2	<0.96	0.88	<0.31	<0.038
B-3		0-2	1.0	<0.34	<0.34	<0.34	<0.34	<0.07	<0.11	<0.014
B-4		2-4	0.6	<0.39	<0.39	<0.39	<0.39	<0.08	<0.13	<0.016
B-5		0-2	0.3	<1	56.9	56.9	<1	32.5	1.6	<0.042
B-6		0-2	0.4	<1.1	16.5	16.5	<1.1	9.2	0.46	<0.046
B-7		2-4	0.6	<0.36	<0.36	0.25	<0.36	0.25	<0.12	<0.014
B-8		4-6	0.8	<0.87	4.8	4.8	<0.87	3.3	<0.28	<0.035
B-9		4-5	1.2	<1.1	26	26	<1.1	12.6	1.4	<0.044
NCDEQ Action Level				**50**	**100**	**NSE**	**13.8056**	**NSE**	**9,068.816**	**0.088**

Concentrations shown in bold exceed the NCDEQ Action Level as outlined in the NCDEQ, DWM, UST Section Guidelines
ppm = parts per million
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
TPH = Total Petroleum Hydrocarbons
BTEX = Benzene, Toluene, Ethylbenzene and Xylenes
NSE = No Standard Exists

6.0 Conclusions and Recommendations

F&R conducted a PSA at the NNN WG Albemarle LLC Property addressed as 1900 East Main Street in Albemarle, Stanly County, North Carolina. A geophysical investigation was performed by Pyramid Environmental & Engineering to investigate the presence and location of USTs in the proposed easements and right-of-way. Based on the results of the geophysical survey, it was determined that USTs were not present within the surveyed area.

Nine GeoProbe borings were advanced during the assessment within the proposed easements and right-of-way, where grading activities and storm drain utilities are proposed in association

with the NC 24-27 improvements. Based on the results of laboratory testing and observed PID readings, petroleum impacted soils were detected in the vicinity of borings B-2, B-5, B-6, B-8, and B-9. Laboratory analysis detected concentrations of DRO at these locations; however, the concentrations of these compounds were below the NCDEQ UST Section DRO Action Level of 100 mg/kg.

It should be noted that a delineation of the soil contamination was not performed, as this was not included in the proposed scope of work. The above conclusions are based on interpretations of soil analytical results, PID readings and our experience with petroleum UST releases.

7.0 Limitations

These services have been performed, under authorization of the North Carolina Department of Transportation for specific application on this project. These services have been performed in accordance with generally accepted environmental and hydrogeological practices. No other warranty, expressed or implied is made. As with any subsurface investigation, actual conditions exist only at the precise locations from which samples were taken. Certain inferences are based on the results of sampling and related testing to form a professional opinion of conditions in areas beyond those from which samples were taken. Our conclusions and recommendations are based upon information provided to us by others, our sampling and testing results and our site observations. We have not verified the completeness or accuracy of the information provided by others, unless otherwise noted. Our observations are based upon conditions readily visible at the site at the time of our site visits.

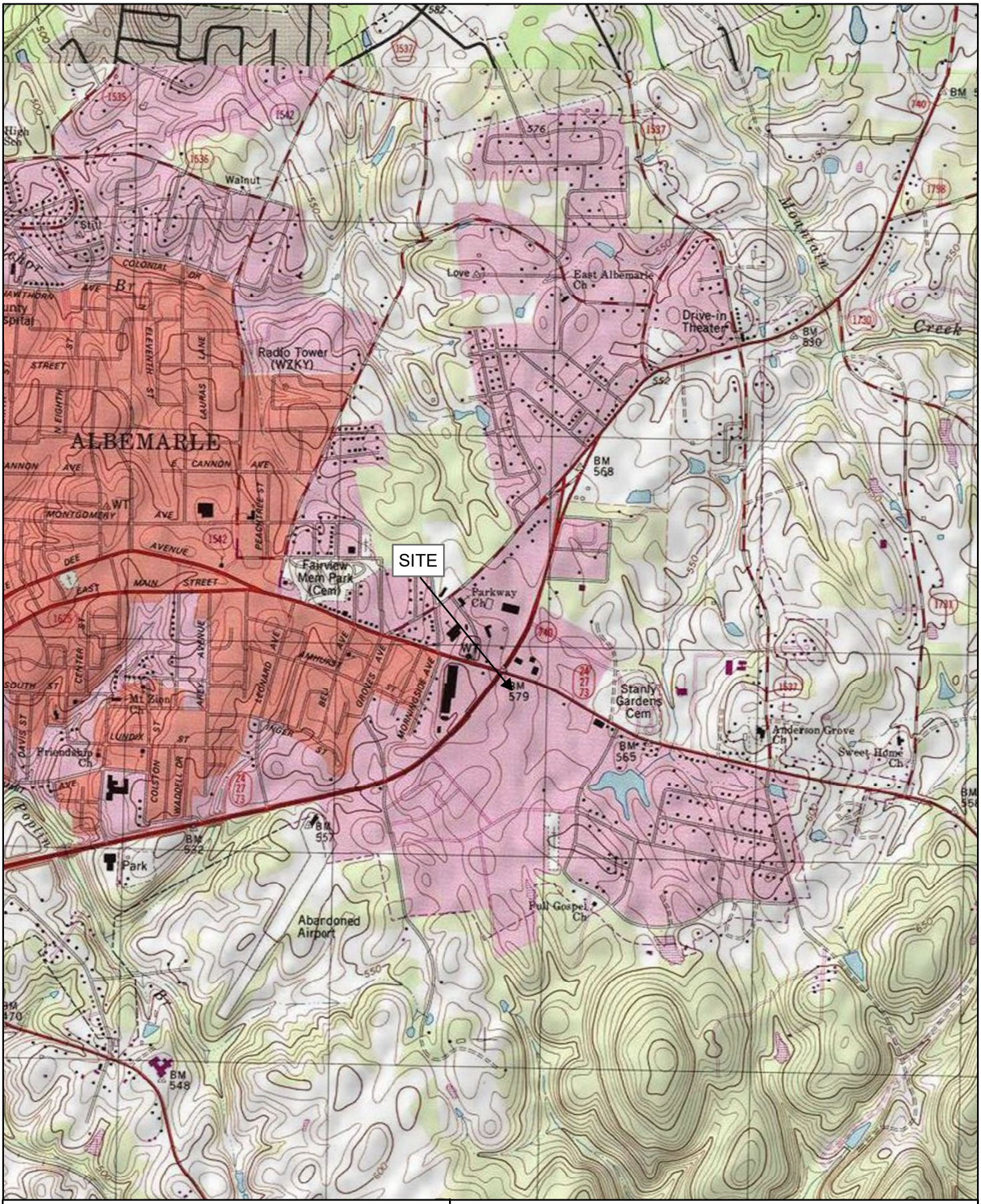
Froehling & Robertson, Inc. by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state or federal public agencies any conditions at the site that may present a potential danger to public health, safety or the environment. In areas that require notification of local, state, or federal public agencies as required by law, it is the Client's responsibility to so notify.

APPENDIX I

Figure No. 1 – TOPOGRAPHIC MAP

Figure No. 2 – SITE VICINITY MAP

Figure No. 3 – LABORATORY RESULTS & BORING LOCATION PLAN



SITE TOPOGRAPHIC MAP

0 1,000 2,000 4,000 6,000 Feet

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Client:	NCDOT
Project:	R-2530B PSAs
Location:	Parcel #007, Albemarle, NC
F&R Project No.:	66V-0092 1900 East Main Street - Albemarle, North Carolina
Data:	USGS 2013
Date:	October 2017 (Revised Feb. 5, 2018) Scale: 1:24,000 1 inch = 2,000 feet

FIGURE No.: 1

SITE VICINITY MAP

0 100 200 400 600 Feet

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881
310 Hubert Street
Raleigh, North Carolina 27603-2302 I USA
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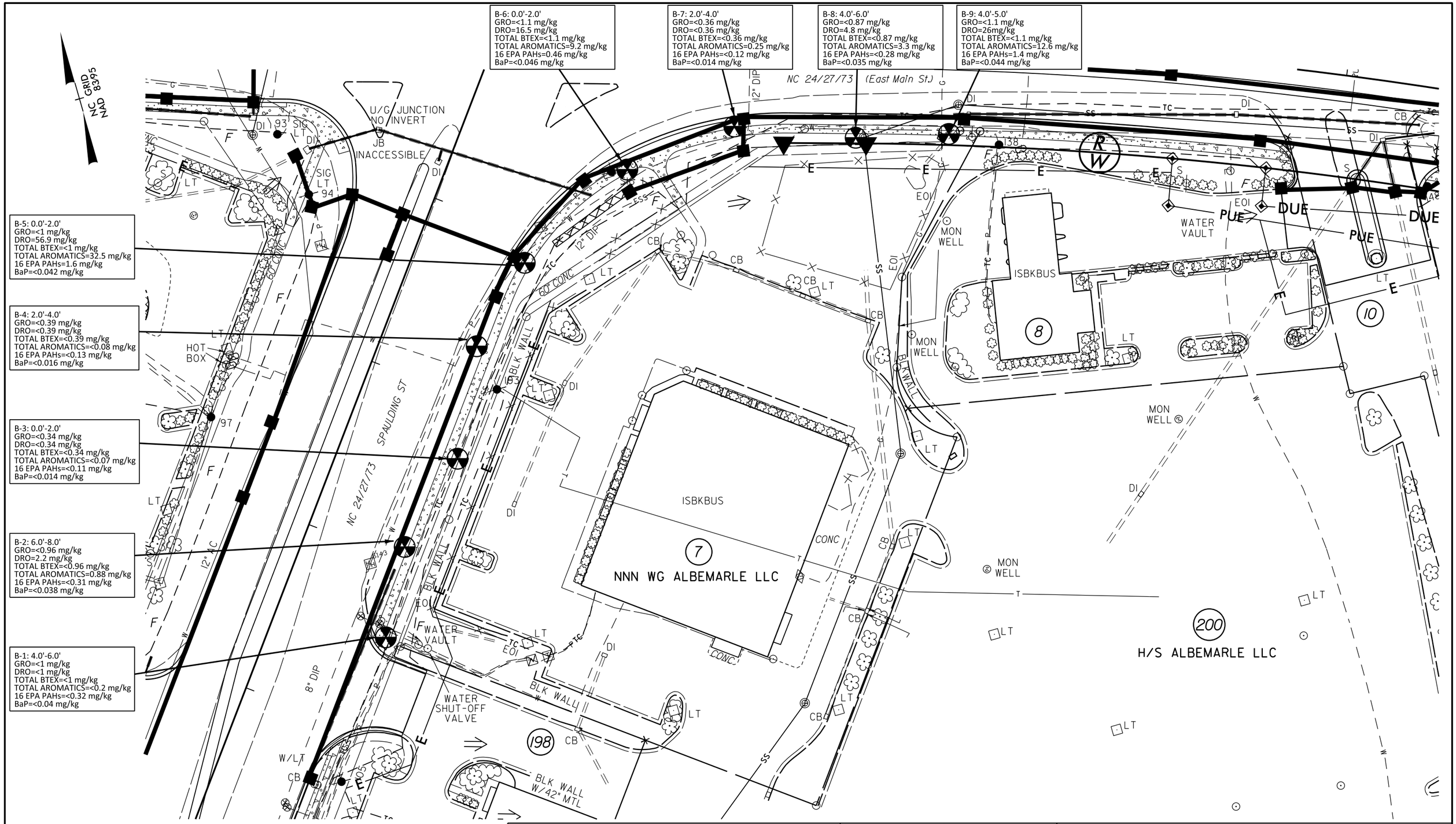
Client:	NCDOT
Project:	R-2530B PSAs
Location:	Parcel #007, Albemarle, NC
F&R Project No.:	66V-0092 1900 East Main Street - Albemarle, North Carolina
Data:	ArcMap Imagery
Date:	October 2017 (Revised Feb. 5, 2018)

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.

Scale: 1:2,400 1 inch = 200 feet

FIGURE No.: 2



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LEGEND

Approximate Geoprobe Boring Location

Sample data shown in bold exceed the NCDEQ Action Level as outlined in the NCDEQ DWM UST Section Guidance

LABORATORY RESULTS & BORING LOCATION PLAN

CLIENT:		
PROJECT: R-2530B PSAs		
LOCATION: Albemarle, NC Parcel #007, 1900 East Main Street		
F&R PROJECT No.: 66V-0092		FIGURE No.: 3
DRAWN BY: T. T. Walker	CHECKED BY: B. Whitley, P.E.	
DATE: February 2018	SCALE: 1"=50'	

APPENDIX II

GEOPHYSICAL REPORT PREPARED BY PYRAMID

PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2017-203)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION:
PARCEL 007
NCDOT PROJECT R-2530B

1900 E. MAIN STREET, ALBEMARLE, NC

AUGUST 25, 2017

Report prepared for: **Benjamin Whitley, P.E.**
Froehling and Robertson
310 Hubert Street
Raleigh, North Carolina 27603

Prepared by: _____
Eric C. Cross, P.G.
NC License #2181

Reviewed by: _____
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GEOPHYSICAL INVESTIGATION REPORT
Parcel 007 – 1900 E. Main Street
Albemarle, Stanly County, North Carolina

Table of Contents

Figures

LIST OF ACRONYMS

CADD .....Computer Assisted Drafting and Design
DF .....Dual Frequency
EM.....Electromagnetic
GPR.....Ground Penetrating Radar
GPS .....Global Positioning System
NCDOT.....North Carolina Department of Transportation
ROW .....Right-of-Way
UST .....Underground Storage Tank

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for Froehling & Robertson, Inc. (F&R) at Parcel 007, located at 1900 E. Main Street, Albemarle, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-2530B). F&R directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted on July 19, 2017, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: All of the EM anomalies were directly attributed to visible cultural features at the ground surface. For this reason, a GPR survey was not required. Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 007.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Froehling and Robertson, Inc. (F&R) at Parcel 007, located at 1900 E. Main Street, Albemarle, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-2530B). F&R directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted on July 19, 2017, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included a commercial building surrounded by an asphalt parking area and grass medians. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of an electromagnetic (EM) induction-metal detection survey. Pyramid collected the EM data using a Geonics EM61 metal detector integrated with a Trimble AG-114 GPS antenna. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8-foot intervals along north-south trending or east-west trending,

generally parallel survey lines, spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 14.0 software programs.

GPR data were not collected due to all EM anomalies being directly attributed to visible cultural features at the ground surface (see *Discussion of Results* section below).

Pyramid's classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks
on NCDOT Projects

High Confidence	Intermediate Confidence	Low Confidence	No Confidence
Known UST Active tank - spatial location, orientation, and approximate depth determined by geophysics.	**Probable UST** Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	**Possible UST** Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist's discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Utility vault	
2	Pole	
3	Utilities	
4	Reinforced pipe	
5	Pole/sign	
6	Metal fence	
7	Sign	
8	Manholes/pipes	

All of the EM anomalies were directly attributed to visible cultural features including utilities, poles, pipes, signs, a metal fence, and manholes. For this reason, a GPR survey was not required.

Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 007.

Figure 3 provides an overlay of the geophysical survey area onto the NCDOT MicroStation engineering plans (proposed ROW and easements) for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 data collected at Parcel 007 in Albemarle, North Carolina, provides the following summary and conclusions:

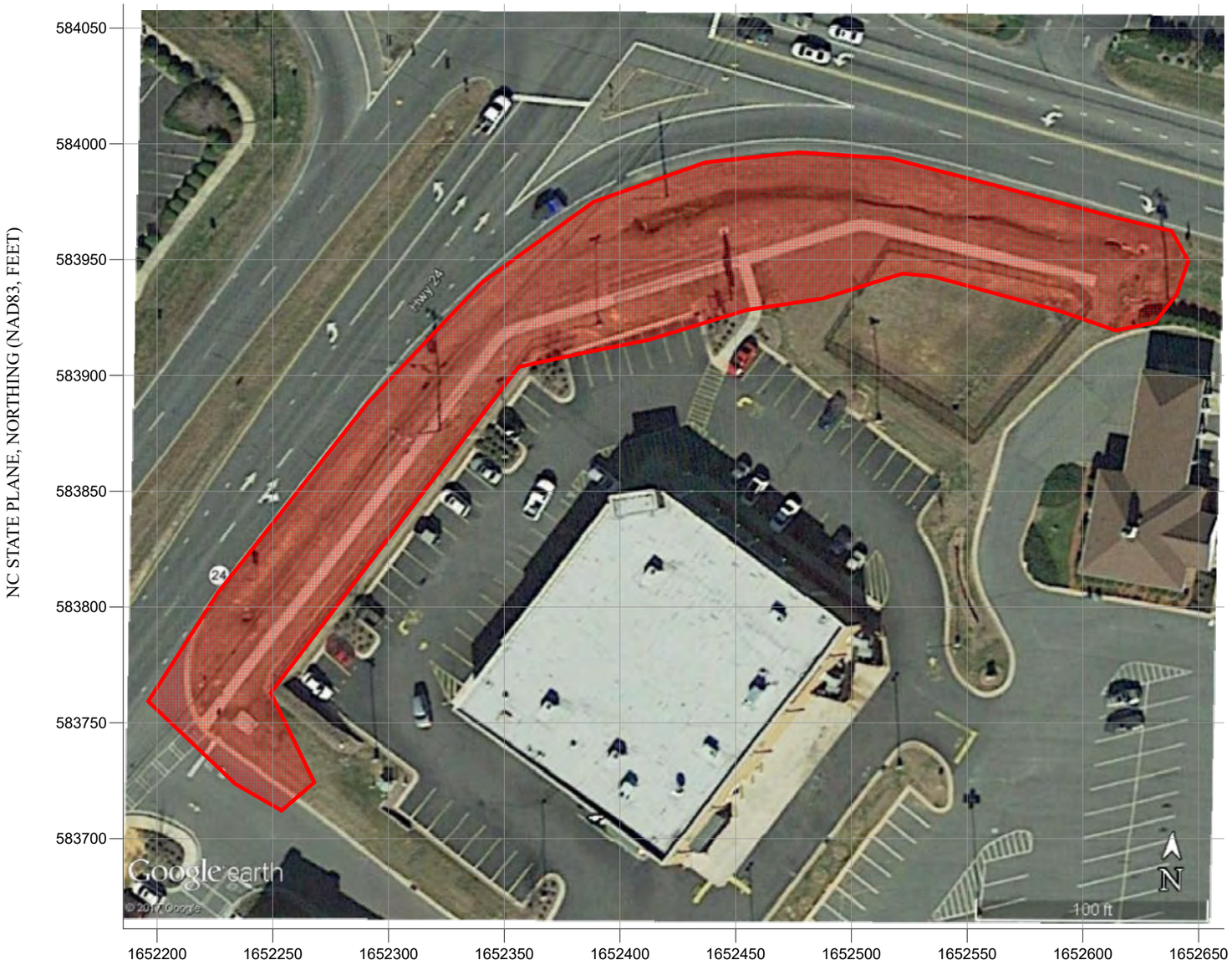
- The EM61 survey provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- All of the EM anomalies were directly attributed to visible cultural features at the ground surface. For this reason, a GPR survey was not required
- Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 007.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for F&R in accordance with generally accepted guidelines for EM61 surveys. It is generally recognized that the results of the EM61 surveys are non-unique and may not represent actual subsurface conditions. The EM61 results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.

N

APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately South)

View of Survey Area
(Facing Approximately Southwest)

TITLE
PARCEL 007 - GEOPHYSICAL SURVEY
BOUNDARIES AND SITE PHOTOGRAPHS

PROJECT
PARCEL 007
ALBEMARLE, NORTH CAROLINA
NCDOT PROJECT R-2530B

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License # C1251 Eng. / License # C257 Geology

DATE 8/24/2017

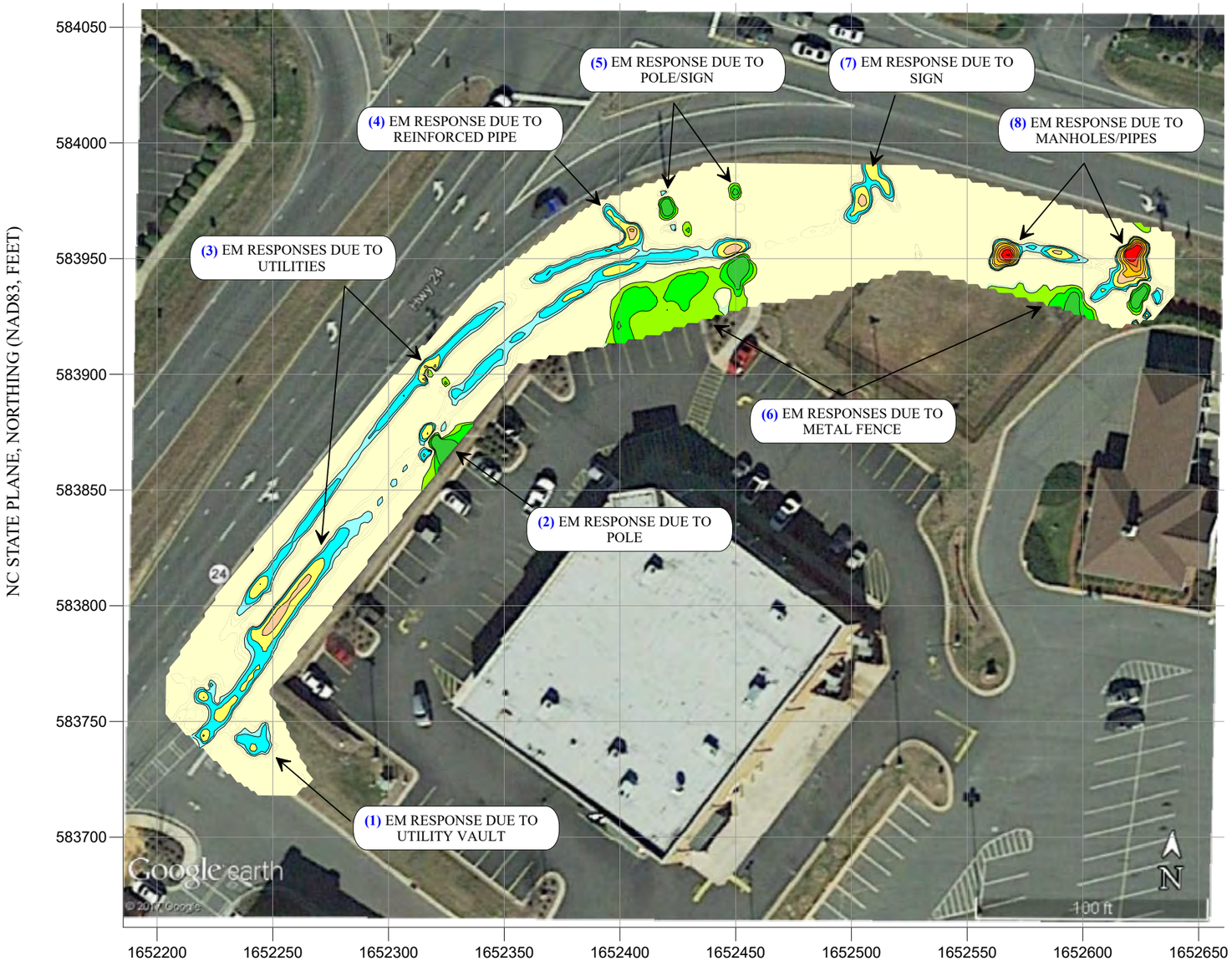
CLIENT
FROEHLING & ROBERTSON

PYRAMID PROJECT #: 2017-203

FIGURE 1

N

EM61 METAL DETECTION RESULTS



NO EVIDENCE OF UNKNOWN METALLIC USTs OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on July 19, 2017, using a Geonics EM61 instrument. Verification GPR data were not required due to all EM anomalies being directly attributed to cultural features.

EM61 Metal Detection Response (millivolts)

TITLE
PARCEL 007 -
EM61 RESULTS CONTOUR MAP

PROJECT
PARCEL 007
ALBEMARLE, NORTH CAROLINA
NCDOT PROJECT R-2530B

PYRAMID GEOPHYSICS
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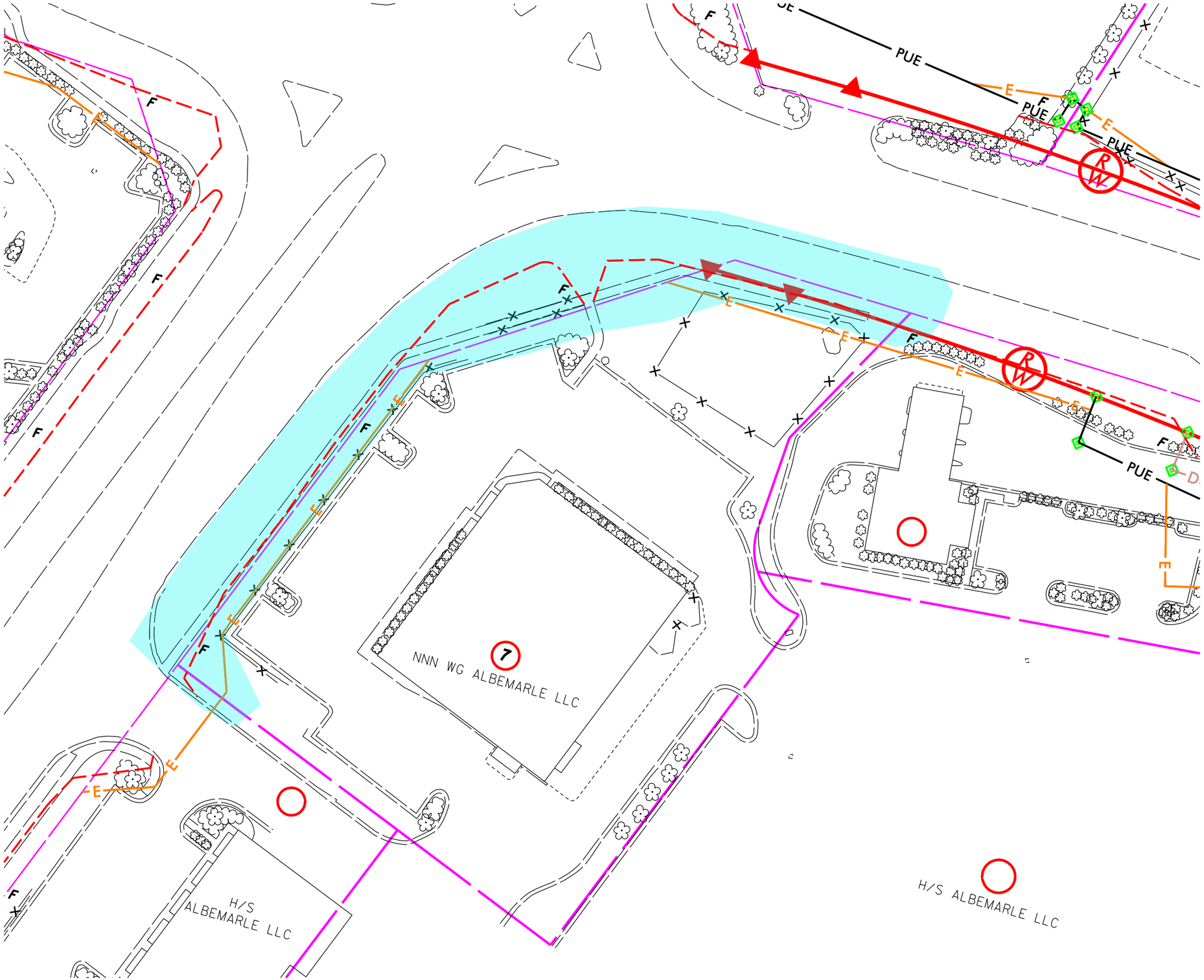
GREENSBORO, NC 27460
(336) 335-3174 (p) (336) 691-0648 (f)
License # C1251 Eng. / License # C257 Geology

DATE 8/24/2017

CLIENT FROEHLING & ROBERTSON

PYRAMID PROJECT #: 2017-203

FIGURE 2



LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- E — TEMPORARY CONSTRUCTION EASEMENT
- PDE — PROPOSED PERMANENT DRAINAGE
- PUE — PROPOSED PERMANENT UTILITY
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- GEOPHYSICAL SURVEY AREA

0 25 50
FEET

N

TITLE
OVERLAY OF GEOPHYSICAL SURVEY BOUNDARIES ON NCDOT ENGINEERING PLANS

PROJECT
PARCEL 007
ALBEMARLE, NORTH CAROLINA
NCDOT PROJECT R-2530B

PYRAMID GEOPHYSICS
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GREENSBORO, NC 27406
336.335.3174 (p) 336.691.0648 (f)
License # C1251 Eng. / #C257 Geology

DATE: 8-24-17	REVISION NO. 0
PYRAMID PROJECT NO. 2017-203	FIGURE NO. 3

APPENDIX III

SITE PHOTOS

Photo #1: Boring location B-1, facing north.

Photo #2: Boring locations B-2 and B-3, facing northeast.

Photo #3: Boring locations B-4 and B-5, facing northeast.

Photo #4: Boring locations B-5 and B-6, facing west.

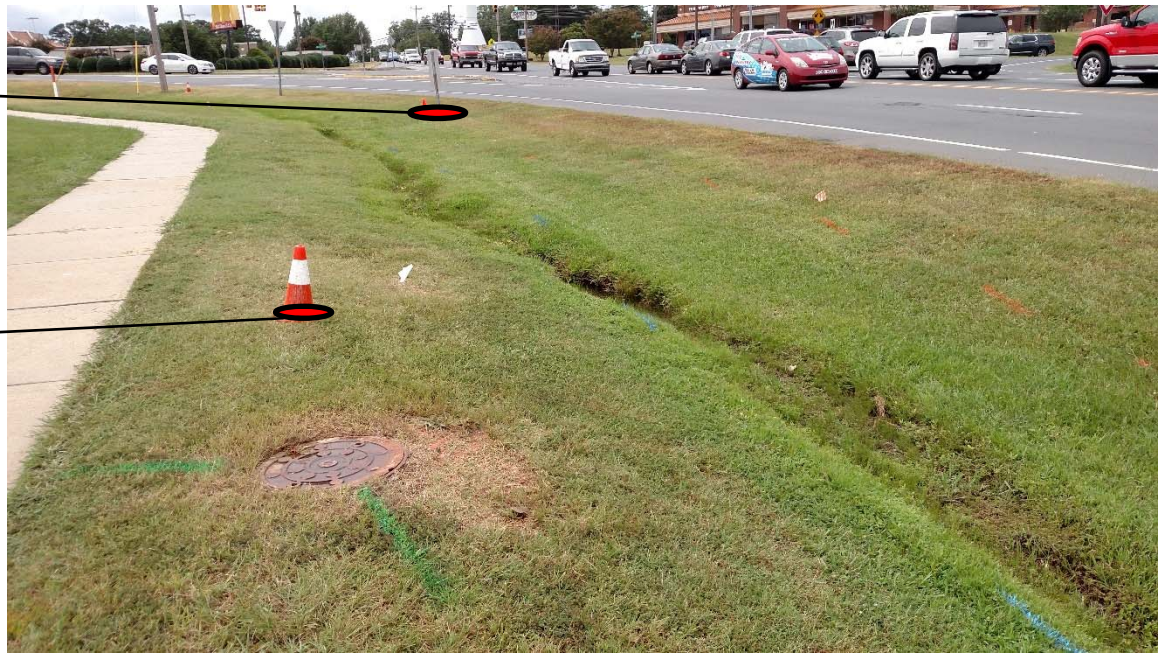


Photo #3: Boring locations B-7 and B-8, facing west.

Photo #4: Boring locations B-8 and B-9, facing west.

APPENDIX IV

GEOPROBE LOGS

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-1 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 9.0'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/17
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Moist, Brown, Silty Sandy Clay			One sample collected for laboratory analysis (4.0-6.0) No petroleum odors observed.
	2.0		2.0	0.5	
	4.0	Moist, Orange Red, Silty Clay	4.0	0.6	
	6.0	Moist, Tan Brown, Silty Clay	6.0	0.6	
	8.0		8.0	0.5	
	9.0	Geoprobe Boring Terminated by Direct Push Refusal at 9 feet.	9.0	0.4	

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-2 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 8.0'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/17
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Moist, Brown, Silty Sandy Clay			One sample collected for laboratory analysis (6.0-8.0) No petroleum odors observed.
	2.0		2.0	0.2	
	4.0	Dry, Gray Brown, Silt	4.0	0.5	
	6.0	Dry, Tan,Silt	6.0	0.5	
	8.0	Geoprobe Boring Terminated by Direct Push Refusal at 8 feet.	8.0	0.6	

GEOPROBE_LOG BORING LOGS - COPY.GPJ F&R.GDT 11/2/17

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-3 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 8.5'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/17
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Moist, Brown, Silty Sandy Clay			One sample collected for laboratory analysis (0.0-2.0) No petroleum odors observed.
	2.0		2.0	1.0	
	4.0	Dry, Tan, Silty Clay	4.0	0.5	
	6.0		6.0	0.5	
	8.5	Geoprobe Boring Terminated by Direct Push Refusal at 8.5 feet.	8.5	0.4	

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-4 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 8.0'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/17
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Moist, Orange, Silty Sandy Clay			One sample collected for laboratory analysis (2.0-4.0) No petroleum odors observed.
	2.0		2.0	0.4	
	4.0	Dry, Tan Brown, Silty Clay	4.0	0.6	
	6.0		6.0	0.6	
	8.0	Geoprobe Boring Terminated by Direct Push Refusal at 8 feet.	8.0	0.5	

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-5 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 2.0'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/16
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Dry, Gray, Silt with Siltstone			One sample collected for laboratory analysis (0.0-2.0) No petroleum odors observed.
	2.0	Geoprobe Boring Terminated by Direct Push Refusal at 2 feet.	2.0	0.3	

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-6 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 2.0'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/17
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Dry, Tan, Silt with Siltstone			One sample collected for laboratory analysis (0-2) No petroleum odors observed.
	2.0	Geoprobe Boring Terminated by Direct Push Refusal at 2 feet.	2.0	0.4	

GEOPROBE_LOG BORING LOGS - COPY.GPJ F&R.GDT 11/2/17

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-7 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 4.0'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/17
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Dry, Gray Tan, Silt with Siltstone			One sample collected for laboratory analysis (2.0-4.0) No petroleum odors observed.
	2.0		2.0	0.6	
	4.0	Geoprobe Boring Terminated by Direct Push Refusal at 4 feet.	4.0	0.6	

GEOPROBE_LOG BORING LOGS - COPY.GPJ F&R.GDT 11/2/17

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-8 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 9.0'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/17
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Moist, Brown, Sandy Clay			One sample collected for laboratory analysis (4.0-6.0) No petroleum odors observed.
	2.0		2.0	0.7	
	4.0	Moist, Gray Tan, Silty Clay	4.0	0.9	
	6.0	No Recovery	6.0	0.8	
	8.0	Dry, Tan Brown, Silty Clay			
	9.0	Geoprobe Boring Terminated by Direct Push Refusal at 9 feet.	9.0	0.8	

FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P007 B-9 (1 of 1)

Project No: 66V-0092
Client: NCDOT
Project: R2530B PSAs
City/State: ALBEMARLE, NC

Elevation: EXISTING
Total Depth: 5.0'
Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH
Hammer Type: Automatic
Date Drilled: 8/8/17
Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Moist, Brown, Sandy Clay			One sample collected for laboratory analysis (4.0-5.0) No petroleum odors observed.
	2.0		2.0	0.6	
	4.0	Dry, Tan Gray, Silty Clay	4.0	0.8	
	5.0	Geoprobe Boring Terminated by Direct Push Refusal at 5 feet.	5.0	1.2	

GEOPROBE_LOG BORING LOGS - COPY.GPJ F&R.GDT 11/2/17

APPENDIX V

LABORATORY ANALYTICAL RESULTS

QED

REDLAB RAPID ENVIRONMENTAL DIAGNOSTICS

QROS

Hydrocarbon Analysis Results

Client: F & R
Address: 310 HUBERT ST
RALEIGH, NC 27603

Samples taken Tuesday, August 8, 2017
Samples extracted Tuesday, August 8, 2017
Samples analysed Monday, August 14, 2017

Contact: BEN WHITLEY

Operator PANTESCO

Project: NCDOT - R2530B - P007

U04049

Matrix	Sample ID	Dilution used	BTEX (C6 - C9)	GRO (C5 - C10)	DRO (C10 - C35)	TPH (C5 - C35)	Total Aromatics (C10-C35)	16 EPA PAHs	BaP	% Ratios			HC Fingerprint Match
										C5 - C10	C10 - C18	C18	
s	P007 B1 (4-6)	40.0	<1	<1	<1	<1	<0.2	<0.32	<0.04	0	0	100	Residual HC,(BO),(P)
s	P007 B2 (6-8)	38.2	<0.96	<0.96	2.2	2.2	0.88	<0.31	<0.038	0	79.9	20.1	Deg.PHC 87.6%,(FCM)
s	P007 B3 (0-2)	13.5	<0.34	<0.34	<0.34	<0.34	<0.07	<0.11	<0.014	0	57.9	42.1	,(FCM),(BO),(P)
s	P007 B4 (2-4)	15.6	<0.39	<0.39	<0.39	<0.39	<0.08	<0.13	<0.016	0	100	0	PHC not detected,(BO)
s	P007 B5 (0-2)	41.9	<1	<1	56.9	56.9	32.5	1.6	<0.042	0	74.7	25.3	V.Deg.PHC 90.8%,(FCM),(BO),(P)
s	P007 B6 (0-2)	45.6	<1.1	<1.1	16.5	16.5	9.2	0.46	<0.046	0	72.8	27.2	V.Deg.PHC 92.8%,(FCM),(P)
s	P007 B7 (2-4)	14.5	<0.36	<0.36	<0.36	0.25	0.25	<0.12	<0.014	0	67.1	32.9	Residual HC,(P)
s	P007 B8 (4-6)	34.7	<0.87	<0.87	4.8	4.8	3.3	<0.28	<0.035	0	69.1	30.9	V.Deg.PHC 76.4%,(FCM),(P)
s	P007 B9 (4-5)	44.1	<1.1	<1.1	26	26	12.6	1.4	<0.044	0	81.8	18.2	Road Tar 77.9%,(FCM)

Initial Calibrator QC check OK

Final FCM QC Check OK 96.1 %

Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

Abbreviations :- FCM = Results calculated using Fundamental Calibration Mode : % = confidence of hydrocarbon identification : (PFM) = Poor Fingerprint Match : (T) = Turbid : (P) = Particulate detected

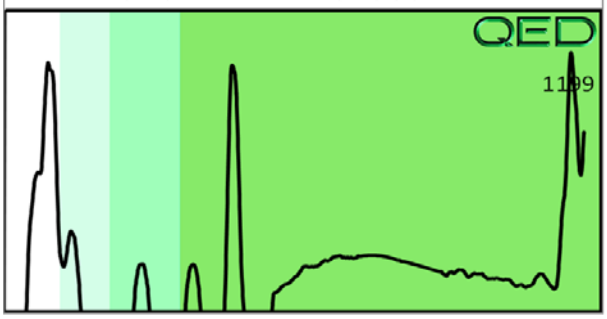
B = Blank Drift : (SBS)/(LBS) = Site Specific or Library Background Subtraction applied to result : (BO) = Background Organics detected : (OCR) = Outside cal range : (M) = Modifed Result.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

QED Hydrocarbon Fingerprints

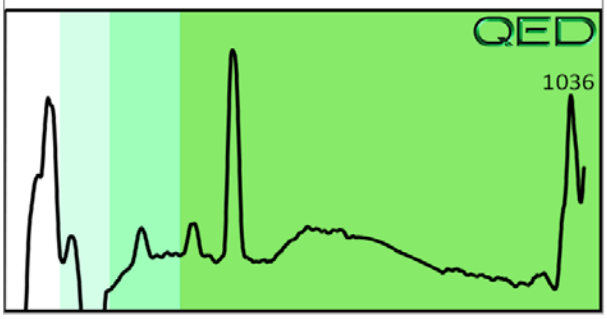
Project: NCDOT - R2530B - P007 Monday, August 14, 2017

P007 B1 (4-6) : Residual HC,(BO),(P)

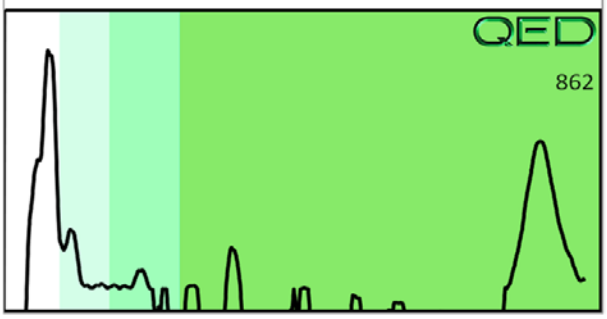


P007 B2 (6-8) : Deg.PHC 87.6%,(FCM)

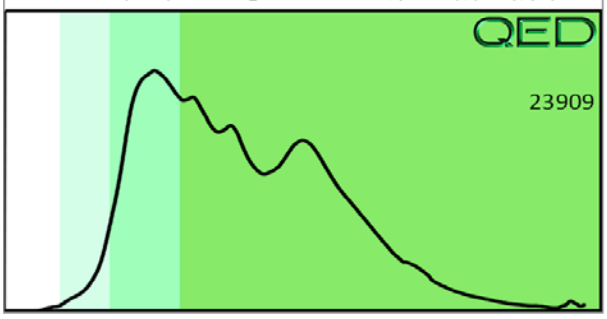
P007 B3 (0-2) : ,(FCM),(BO),(P)



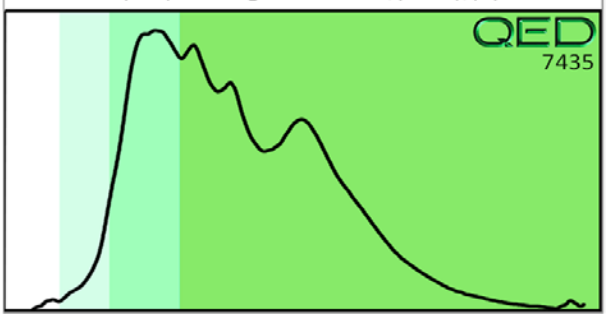
P007 B4 (2-4) : PHC not detected,(BO)



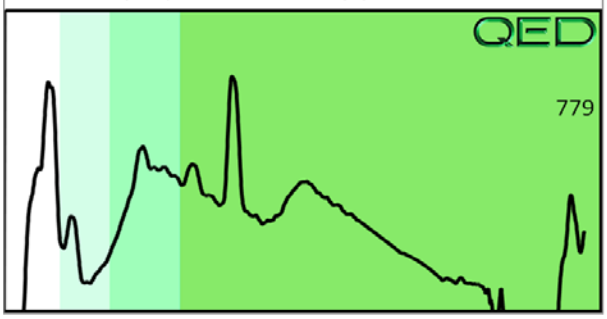
P007 B5 (0-2) : V.Deg.PHC 90.8%,(FCM),(BO),(P)



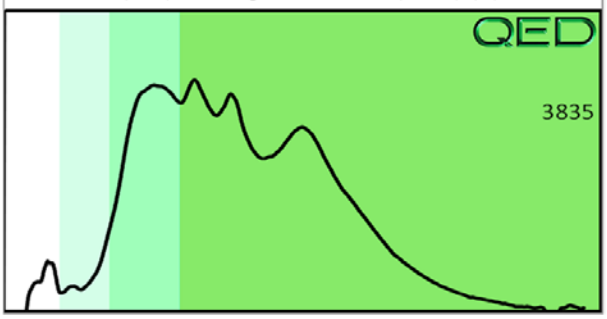
P007 B6 (0-2) : V.Deg.PHC 92.8%,(FCM),(P)



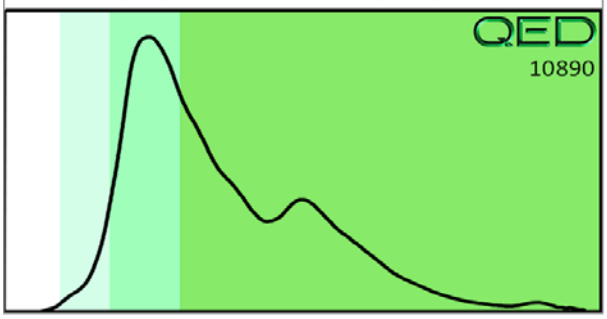
P007 B7 (2-4) : Residual HC,(P)



P007 B8 (4-6) : V.Deg.PHC 76.4%,(FCM),(P)



P007 B9 (4-5) : Road Tar 77.9%,(FCM)



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